

1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--ACTUAL PROBLEMS OF THE ORGANIZATION AND EFFECTIVENESS OF
PREHOSPITAL REANIMATION OF PATIENTS WITH MYOCARDIAL INFARCTION -U-
AUTHOR-(03)-ZILBERMAN, D.B., TAIKH, YA.I., KAMINSKIY, V.G.

COUNTRY OF INFO--USSR

SOURCE--KARDIOLOGIYA 10(1): 37-44. 1970

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEART DISEASE, RESUSCITATION, FIRST AID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0547

STEP NO--UR/0495/70/010/001/0037/0044

CIRC ACCESSION NO--AP0131170

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131170

48STRACT/EXTRACT--(U) GP-0- ABSTRACT. DATA RELATIVE TO THE EFFICACY OF PREHOSPITAL REANIMATION OF 139 PATIENTS SUFFERING FROM MYOCARDIAL INFARCTION WERE PRESENTED. SUCCESSFUL REANIMATION WAS EFFECTED IN 43 (30.9PERCENT) PATIENTS, OF WHOM 29 (20.9PERCENT) SURVIVED AND WERE DISCHARGED FROM THE HOSPITAL. ORGANIZATION OF PREHOSPITAL REANIMATION MEASURES WITH THE PARTICIPATION OF THE FOLLOWING GROUPS: PREMEDICAL, GENERAL FIRST AID AMBULANCE TEAM AND SPECIALIZED FOR FIRST AID CARDIOLOGICAL TEAM IS OUTLINED. THE EFFECTIVENESS OF REANIMATION DEPENDING UPON THE PATIENTS' AGE AND THE PRESENCE AND MARKEDNESS OF CIRCULATORY INSUFFICIENCY, PREVIOUS TO CLINICAL DEATH, IS ANALYZED. SUCCESSFUL REANIMATION IS ADVANCED AGE AND IN PRECEDING ACUTE CIRCULATORY INSUFFICIENCY OF MILD AND MODERATE DEGREE CAN BE CARRIED OUT. REANIMATION WAS NOT SUCCESSFUL IN PATIENTS WITH PRECEDING SEVERE CIRCULATORY INSUFFICIENCY. BLOOD ELECTROLYTES IN THE POSTREANIMATION PERIOD WERE STUDIED; THERE WAS SIGNIFICANT DECLINE IN THE BLOOD K LEVEL. K SHOULD BE INTRODUCED IN THE FORM OF A POLARIZING MIXTURE, ESPECIALLY TO PATIENTS WITH AN IRREGULAR CARDIAC THYRHM IN THE POSTREANIMATION PERIOD. PROBLEMS OF INTRACARDIAC INJECTION OF DRUGS AND INTUBATION IN PATIENTS WITH MYOCARDIAL INFARCTION DURING REANIMATION ARE DISCUSSED.

FACILITY: KIEV STA. FIRST MED. AID., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 621.385.4

ZIL'BERMAN, I.I., PETROV, G.S.

"Transfer Of Energy From An Electron Flow To A High-Frequency Field Of A Two-Gap Gridless Resonator With Antiphased Voltage At The Gaps"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 3, pp 65-75 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No SA18)

Translation: In a kinematic approximation, a computation is performed for the transfer of energy from a bunched electron flow to a 2-gap gridless resonator. The computation is performed for three annular domains: at the axis of the gap $r = 0$, at the edge of the gap with $r = a$, and the center part with $r = a/2$. It is shown that for small distances between the gaps, the conditions for optimum transfer of energy for these three domains differ substantially. The dependence of the electronic efficiency of the resonator on the geometry of the interaction domain is considered, and recommendations are given with respect to a choice of optimum relationships. 6 ref. Summary.

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USSR

ZIL'BERMAN, L. A.; IVANCHENKO, Yu. M. (Donetsk Physics-Engineering Institute, Ukrainian Academy of Sciences)

"[Electrical] Current State of Metals with Nonmagnetic Impurities"

Leningrad, Fizika Tverdogo Tela; May, 1972; pp 1355-60

ABSTRACT: The effect of oscillating degrees of freedom of impurity atoms on the shape of the nonlinear volt-ampere characteristic of simple metals was studied. It was shown that with low temperatures with respect to nonlinearities of the volt-ampere characteristic and its derivatives it is possible to recover a spectrum of quasilocal oscillations. Inasmuch as it is possible experimentally to generate only relatively small current densities in metals, the entire study was carried out for heavy impurities ($M_i > M$), where M_i is the mass of the impurity ions and M is the mass of the metal ions, when the frequency of the quasilocal level is significantly less than the Debye frequency and small drift velocities of the electrons are sufficient for the observation of the effect.

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USSR

UDC 537.312.62

GALKIN, A. A., Academician of the Academy of Sciences UkrSSR, BORODAY, B. I.
~~ZIL'BERMAN, I. A.~~, IVANCHENKO, YU. M., SVISTUNOV, V. M., Donetsk Physicotechni-
cal Institute of the Academy of Sciences UkrSSR

"Role of Low-Frequency Fluctuations in the Josephson Effect"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 3, 1971, pp 556-558

Abstract: The role of low-frequency fluctuations which lead to variations in the Josephson current as a function of anomalous current-voltage characteristics and magnetism is discussed. It is noted that for superconducting tunnel systems it is possible to establish phase coherence through the barrier to ensure tunneling of paired electrons. The presence of fluctuations comparable with the binding energy of the barrier can considerably effect the behavior of Josephson contacts, and many theoretical and experimental studies have been devoted to the effect of thermal fluctuations on the characteristics of superconducting tunneling. Tunnel contacts of the type Sn-I-Sn with specific resistance $0.01-0.02 \text{ ohm}\cdot\text{mm}^2$, a high ratio $I_{\text{exp}}/I_{\text{theor}} \sim 87-92\%$, and with a dependence of the critical current on the magnetic field close to $\sin \pi H/H_0 / \pi H/H_0$ were studied. For all samples the

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GALKIN, A. A., et al., Doklady Akademii Nauk SSSR, Vol 196, No 3, 1971, pp 556-558

transition width did not exceed twice the Josephson penetration depth ($2\lambda_j$). Since fluctuation frequencies were considerably less than the characteristic frequencies of the system, the capacitance C and the inductance L of the tunneling and the external loop could be neglected in order to simplify the calculations. A graph of the effect of low-frequency fluctuations on the variation of Josephson current with magnetism and the initial segments of the current-voltage characteristics for different noise voltages shows that the presence of noise voltages leads to the rise of a resistance state. The experiment showed that noise voltages result in the envelop of oscillations of the superconducting tunnel current in magnetic fields dropping more rapidly than $1/H$ and ultimately in the oscillations completely disappearing in strong noises. This is said to demonstrate the significance of low-frequency noises in superconducting tunneling.

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- 133 -

Acc. Nr: **AP0038043**

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 1, pp 211-225

FLUCTUATIONS IN JOSEPHSON CONTACT

Ivanchenko, Yu. M.; Zil'berman, L. A.

The behavior of a superconducting tunnel contact in the presence of thermal fluctuations is investigated. In contrast to the case considered in ref [1] the transverse dimensions of the transition are not considered small. One must therefore assume that the fluctuations introduced from the external circuit and arising within the contact act differently and in the general case cannot be taken into account by introducing some effective temperature. The dependences of the stationary current component on the magnetic field and the Josephson radiation spectra are calculated. The dependences may strongly differ from those previously known [4-7]. It is possible that some of the results obtained have been observed experimentally [8, 12, 14].

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Nitrogen Compounds

USSR

UDC 615.216:547.831

ABRAMOCHKIN, E. S., KONSHIN, M. YE., ZAKS, A. S., and ~~YIL'DERMAN, I. G.~~, Permsk Pharmaceutical and Medical Institute

"Study of Heterocyclic Compounds. VIII. Substituted Amides of 2,3-Pentamethylenecholinoline-4-carboxylic Acid"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 6, No 1, Jan 72, pp 19-21

Abstract: Synthesis of the amides of 2,3-pentamethylenecholinoline-4-carboxylic acid and its 6-methyl analogue was carried out by heating the hydrochloride of the parent acyl chloride with primary or secondary amines in benzene and in presence of triethylamine. The products -- colorless crystalline compounds -- are obtained in 55-80% yields; they form water soluble chlorohydrates. The amides synthesized show maxima in the UV spectra at 232-240, 280-286, 306-312, and 320-326 mμ; these maxima are shifted bathochromically with introduction of a 6-methyl substituent. The LD₅₀ doses of these compounds ranged from 84-375 mg/kg body weight.

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Electricity and Magnetism

USSR

GULYAYEV, Yu. V., ZIL'BERMAN, P. Ye., Institute of Radio Engineering and Electronics, Academy of Sciences USSR, Moscow

"Superheterodyne Amplification of Electromagnetic Waves"

Leningrad, Fizika Tverdogo Tela, No. 4, Apr 71, pp 955-957

Abstract: The possibility of heterodyne amplification of electromagnetic waves in a nonlinear medium is investigated. Superheterodyne amplification of ultrasonic waves was discussed in 1970 by the authors and it was noted then that this principle of superheterodyne amplification is applicable to other waves, such as electromagnetic. In this case, the medium should have the capacity for selective amplification of a weak wave of frequency ω_i , where ω_i corresponds to the maximum of the amplification. In the presence of a strong wave of frequency ω_g , which plays the role of a heterodyne, the increment of growth natural to the frequency ω is also transferred to the frequency of the signal $\omega_s = \omega_g - \omega_i$. The intensity of the wave ω_g necessary for this effect is calculated. It is shown that this

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GULYAYEV, Yu. V., ZIL'BERMAN, P. Ye., Fizika tverdogo tela, No. 4, Apr 71, pp 955-957

intensity is sufficiently small, so that the parametric amplification of the signal can be neglected. The physical reason for this effect is the heterodyne action of the intense wave E_g , and due to the nonlinearity of the medium this wave after being displaced from the signal wave generates a wave at the frequency of the maximum amplification ω_i . The latter is amplified and after interacting with E_g is again transformed into a signal.

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1/2 033 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ABSORPTION OF ULTRASOUND IN MULTIVALLEY SEMICONDUCTORS -U-
AUTHOR-(02)-ZILBERMAN, P.YE., MISHIN, A.G.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(3), 456-60
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--ULTRASOUND ABSORPTION, GERMANIUM SEMICONDUCTOR, WAVE
PROPAGATION, ELECTRON, ENERGY SPECTRUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/1716 STEP NO--UR/0449/70/004/003/0456/0460
CIRC ACCESSION NO--AP0120428
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0120428

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SYSTEM OF PHENOMENOL. EQUATIONS IS SOLVED AND FORMULAS ARE DERIVED FOR THE ELECTRON ABSORPTION OF ULTRASOUND IN N GE TYPE SEMICONDUCTORS IN A WIDE FREQUENCY RANGE. AT HIGH FREQUENCIES, PARTIAL NEUTRALIZATION OF ELECTRON CLUSTERS TAKES PLACE IN SOME DIRECTIONS (AND AT CERTAIN POLARIZATIONS) OF ULTRASOUND WAVE PROPAGATION. THE INFLUENCE IS DISCUSSED OF THE ANISOTROPY OF ELECTRON ENERGY SPECTRA ON THE ULTRASOUND ABSORPTION. FACILITY: INST. RADIOTEKH. ELEKTRON., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC:

ZIL'BERMAN, P. YE. and MISHIN, A. G., Institute of Radio Engineering and Electronics of the USSR Academy of Sciences, Moscow

"The Effect of a Strong Electric Field on the Interaction of Electrons with High Frequency Ultrasound"

Leningrad, Fizika Tverdogo Tela, Vol 14, No 3, Mar 1972, pp 902-904

Abstract: The authors present the results of studying the intensification of ultrasound with the following conditions satisfied: $kL \gg 1$, where k is the wave number of the sound and L is the length of the free path electrons; $\tau_{dr} \gg 1$, where the rate of drift $v_{dr} \sim eE\tau/m$ and where τ is pulse relaxation time and e and m are the charge and mass of the electron. An appropriate system of equations was obtained by using a procedure described by P. Ye. Zil'berman (ZhETF, 60, 1943, 1971). As opposed to the latter procedure, the authors of this paper consider the higher harmonics of the sound wave. Equations were solved by the method of iteration with respect to the amplitude of the first harmonic. The sound amplification coefficient is calculated, taking into consideration the main, nonlinear contribution. The authors thank V. L. Bonch-Bruyevich, Yu. M. Gal'perin, Yu. V. Gulyayev, and V. D. Kagan for their discussion of the work. Original article: 11 formulas, one figure, and four bibliographic entries.

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17/ 23 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--DETERMINATION OF THE CONTENT OF SOME AUXILIARY SUBSTANCES IN
SUSPENSION POLY VINYL CHLORIDE -U-
AUTHOR--(05)--PEREPLETCHIKOVA, YE.M., KALININ, A.I., KOMLEVA, V.N.,
LUNICHEVA, E.V., ZILBERMAN, YE.N.
COUNTRY OF INFO--USSR
SOURCE--PLAST. MASSY 1970, (3), 48-51
DATE PUBLISHED--70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--POLYVINYL CHLORIDE, CHEMICAL SUSPENSION, CHROMATOGRAPHY,
POLAROGRAPHIC ANALYSIS, COLLOID, LEAD, CADMIUM, BARIUM, CALCIUM, ION,
CHEMICAL ANALYSIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1802 STEP NO--UR/0191/70/000/003/0048/0051
CIRC ACCESSION NO--AP0123599
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123599

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE QUANT. EXTN. OF RESIDUAL INITIATORS (E.G., BZ SUB2 O SUB2, AZOBISISOBUTYRONITRILE, LAUROYL PEROXIDE, ETC.) FROM SUSPENSION POLY (VINYL CHLORIDE) (I) AND THE DETN. OF INITIATORS BY GAS, LIQ. CHROMATOG. AND POLAROGRAPHY WERE DESCRIBED. QUAL. CHEM. REACTIONS WERE USED TO IDENTIFY PROTECTIVE COLLOIDS IN AQ. EXTS. OF I. P8 PRIME2 POSITIVE, CD PRIME2 POSITIVE, BA PRIME2 POSITIVE, AND CA PRIME2 POSITIVE WERE DETD. BY EMISSION SPECTROSCOPY, POLAROGRAPHY, AND QUAL. ANAL., WHEREAS THE CONTENT OF CIS,9,OCTADECENE,1,OL WAS DETD. BY GAS LIQ. CHROMATOG.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--02 OCT 70
TITLE--MECHANISM OF THE REACTION OF TRICHLOROACETONITRILE WITH SULFURIC
ACID MONOHYDRATE -U-
AUTHOR--(03)--MICHURIN, A.A., SIVENKOV, YE.A., ZILBERMAN, YE.N.
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(3) 626
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL REACTION RATE, CHLORINATED ORGANIC COMPOUND,
ACETONITRILE, SULFURIC ACID, AMINE, SULFUR OXIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REFL/FRAME--1992/1547 STEP NO--UR/0366/70/006/003/0626/0526
CIPC ACCESSION NO--AP0112541
UNCLASSIFIED

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PROCESSING DATE--02 OCT 70

CIRC ACCESSION NO--AP0112541

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF CL SUB3 CCN WITH H SUB2 SO SUB4 GAVE SMALLER THAN OR EQUAL TO 40PERCENT CL SUB3 CCONH SUB2 (I) AND SO SUB3. HEATING I IN A 3 FOLD EXCESS OF CL SUB3 CCN GAVE (CL SUB3 CCONH) SUB2-SO SUB2 (II). THIS COMPD. IS NOT FORMED WHEN I IS HEATED WITH SO SUB 2 ALONG; HOWEVER, UNDER CERTAIN CONDITIONS (P. BAUMGARTEN, ET AL., 1931) I REACTS WITH SO SUB2 TO GIVE CL SUB3 CCONH SO SUB2 OH. A CYCLIC MECHANISM IS PROPOSED FOR THE FORMATION OF II.

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1/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--POLYMERIZATION OF VINYLIDENE CHLORIDE BY A CATIONIC MECHANISM -U-
AUTHOR--(04)-KULIKOVA, A.YE., ZILBERMAN, YE.N., PINCHUK, N.M., OKLAONOV,
N.A.
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(4), 298-301
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--POLYMERIZATION, VINYLIDENE RESIN, CHLORIDE, CHEMICAL REACTION
MECHANISM, CATALYST, ZINC CHLORIDE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/1248 STEP NO--UR/0460/70/012/004/0298/0301
CIRC ACCESSION NO--AP0134922
UNCLASSIFIED

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PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134922
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE CATIONIC POLYMN. OF CH
SUB2:CCL SUB2 WAS STUDIED IN THE PRESENCE OF ZNCL SUB2. UNLIKE THE
POLYMN. IN THE PRESENCE OF ALCL SUB3, ZNCL SUB2 INITIATED POLYMN. GAVE
MECCL SUB2 CH:CCL SUB2 AND POLY(VINYLDENE CHLORIDE). A REACTION
MECHANISM WAS PROPOSED.

UNCLASSIFIED

UDC 632.95

USSR

GOL'DINOV, A. L., PANSIN, Yu. A., ZIL'BERMINTS, G. S., SHAPKIN, L. G., and GALUTSKIY, G. M.

"Synthesis of Trichloroacetic Acid"

USSR Author's Certificate No 284781, Filed 11 Jun 69, Published 12 Jun 72
(from Referativnyy Zhurnal -- Khimiya, Svochnyy Tom, (I, L-S), No 1(II),
1973, Abstract No 1N499P by T. A. Belyayeva)

Translation: Trichloroacetic acid is synthesized by oxidation of CCl_3CHO (I) at 45-65°C in the presence of HNO_3 by passing oxygen through the reaction mixture, followed by a final oxidation with HNO_3 at 80-100°C. Example. Synthesis is carried out continuously in a sequence consisting of three glass reactors (Rc). The first Rc is supplied with I, as well as with HNO_3 and O_2 in amounts 0.2-0.5 and 0.4-0.8 mole per 1 mole of I, respectively. In some cases the second Rc is also supplied with O_2 . The reaction mixture stays in each Rc for 6 hrs. Temperature in the first, second, and third Rc is maintained at 45-65, 80-90, and 90-95°C, respectively. The concentration of HNO_3 is kept at 85-98%, and of I at 83-98%. The yield of CCl_3COOH is 97.5-100%.

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USSR

UDC 632.951

ZIL'BERMINTS, I. V., FADEYEV, YU. N., ZHURAVLEVA, L. M., All-Union Scientific Research Institute of Phytopathology

"Effect of Specific Acaricides Against Susceptible and Resistant Red Spider Populations"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 10 (84), Oct 70, pp 34-38

Abstract: Experiments were conducted to determine the suitability of some acaricides for killing resistant forms of mites. A susceptible population of Tetranychus urticae Koch taken from Moscow greenhouses was studied as well as three resistant populations produced in the laboratory by keltane, mercaptophos and aramite selection. The acaricides tested were acar, acrex, aramite, binapacryl, eradex, halecron, keltane, mesurol, micazine, milbex, and morestan. The results of these studies show that any resistant red spider population can be destroyed by proper selection of three of four specific acaricides. In the case where mites develop a resistance to organo-chlorine compounds, substitution or alternate application of acaricides from the keltane-acar-milbex-micazine group is not recommended.

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USSR

ZIL'BERMINTS, I. V., et al., Khimiya v Sel'skom Khozyaystve, Vol 8, Mo 10 (84), Oct 70, pp 34-38

Substitution and alternate application of acrex, aramite, binapacryl and morestan may be used as well as combination of these chemicals with any from the first group (keltane, acar, milbex and micazine). All compounds tested with the exception of mesurol can be used to combat mites which are resistant to thiophos, mercaptophos, rogor and other similar organophosphorus compounds. Mesurol should not be used simultaneously with organophosphorus compounds to avoid development of resistance to this entire group of pesticides.

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ACC NR: AP9011014

SOURCE CODE: UR/0390/69/032/001/0102/0105

AUTHOR: Grosman, Yu. S. (Head; Professor); Zil'bermints, L. G.; Zaks, A. S.;
Rabotnikov, Yu. M.

ORG: Department of Pharmacology /Head--Professor Yu. S. Grosman/, Perm'
Medical Institute (Kafedra farmakologii Permskogo meditsinskogo instituta)

TITLE: Effect of vitamins and their combination with cholinolytics on
the course of acute poisoning with some organic phosphorus compounds

SOURCE: Farmakologiya i toksikologiya, v. 32, no. 1, 1969, 102-105

TOPIC TAGS: organic phosphorus insecticide, vitamin cholinolytic,
selective drug effect, atropine

ABSTRACT: The effect of the gangliolytic compound "gangleron" 1--10
micrograms/g of body weight, the combination of "gangleron" with
atropine, and vitamins in dosages shown in the table, on the course
of chlorophos, trichlormetaphos and phosphacol poisoning (doses equal
to LD₅₀) was studied in mice, rats and frogs. All drugs were
administered intraperitoneally. The vitamins and antidotes were
administered 45--60 min before the organic phosphorus compounds. The
antitoxic effect was evaluated by the survival rate in mice during 24

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ACC NR: AP9011014

Table 1. Effect of vitamins on mortality in mice, poisoned with some organic phosphorus compounds

Vitamins and their combinations	Doses (micro-grams/gram)	Mortality in mice (in %) at various periods after administration of drugs						
		Chlorophos			Trichlorometaphos		Phosphacol	
		3 hr	6 hr	24 hr	3 hr	6 hr	24 hr	30 min
Control		80	96	100	100			
Vitamin PP	10-100	35	50	80	45	85	100	100
Vitamin B _c	0,1-10	$P < 0,001$	$P < 0,001$	95	$P < 0,001$		100	100
Vitamin K ₃	0,5-10	$P < 0,01$	$P < 0,01$	100	$P < 0,05$	85	100	100
PP+B _c		$P < 0,05$	65		90	100	100	80
PP+K ₃	100+1	50	50	55	60	90	100	100
B+K ₃	100+5	60	60	70	70	100	100	100
Atropine	1+5	70	70	80	70	90	100	100
Atropine + PP	0,005	50	80	100	40	60	100	50
		$P < 0,001$			$P < 0,001$			
Atropine + B _c	0,005+100	30	40	40	30	45	75	30
Atropine + K ₃	0,005+1	35	65	80	40	60	80	60
	0,005+5	35	45	75	60	70	90	60

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ACC NR: AP9011014

hr after poisoning. Results are shown in the table. No protective effect was obtained with "gangleron". Data obtained from the study indicate that vitamins and their combinations with cholinolytics are useful for prevention of poisoning with organic phosphorus compounds. Sodium nicotinate, folic acid and vitamin K ("vikasol") did not affect acetylcholinesterase activity in intact rabbits and did not reactivate enzymes in animals exposed to organic phosphorus compounds. Vitamins did not change central and peripheral effects of arecoline and nicotine in experiments on white mice. A mild cholinolytic effect was noted with sodium nicotinate and vitamin K ("vikasol") in concentrations of $1:5 \cdot 10^{-3}$. Orig. art. has: 1 table. [WA-50; CBE No. 43] [XF]

SUB CODE: 06 / SUBM DATE: 14Nov67/ ORIG REF: 003/ OTH REF: 001

Card 3/3

1951 0345

USSR

GEDRIMOVICH, G. V.; ZIL'BERMINTS, L. V.

"Extent of Coverage and Criteria for Selection of World Literature for Current Bibliographies"

Moscow, Nauchno-Tekhnicheskaya Informatsiya: Seriya 1 - Organizatsiya i Metodika Informatsionnoy Raboty; March, 1972; pp 29-35

ABSTRACT: The article concerns the procedure and findings of a study the purpose of which was to determine the extent of coverage of journals, principles of selection, and duplication in the leading bibliographic aids in metallurgy. The authors identify the periodicals that are covered by all the sources under study and the metallurgical journals not covered in all the bibliographies. The periodicals were divided into four groups, and the average number of articles in each group was determined. The number of articles published in 20 leading metallurgical journals and the journals of the different groups was determined and compared with data on the coverage of these articles in the bibliographies.

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USSR

GEDRIMOVICH, G. V., ZIL'BERMINTS, L. V., Nauchno-Tekhnicheskaya Informatsiya:
Seriya 1 - Organizatsiya i Metodika Informatsionnoy Raboty; March, 1972;
pp 29-35

The authors listed by subject, type, language, and geography the coverage typical of all the secondary sources analyzed as well as the essential differences in the coverage of Soviet and foreign journals for all four groups. This means that when one needs optimal bibliographic data, he must turn to all current bibliographies under study; in practice, however, the various indicators obtained (type of publication, country, language, subject, extent of coverage, etc.) can be used as the bibliographic data.

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CSO: 1863-W

- 88 -

AP9034468

CHEMICAL ABST. 8-69

W. R. 0191

1/2 011 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--A SERIES OF CONTACTLESS SYNCHRONOUS POWER GENERATORS UP TO 100 KW
FOR WIND DRIVEN ELECTRIC POWER UNITS -U-
AUTHOR--(U)-ORUSOV, I.D., RYZIKOV, V.S., ZILBERSHTEYN, L.A., VOLCHKOV,
V.K.
COUNTRY OF INFO--USSR
SOURCE--ELEKTROTEKHNIKA (ELECTRICAL ENGINEERING), 1970, NO 1, PP 56-58
DATE PUBLISHED-----70
SUBJECT AREAS--ENERGY CONVERSION (NON-PROPULSIVE)
TOPIC TAGS--SYNCHRONOUS GENERATOR, WIND POWERED MOTOR, MAGNETIC CIRCUIT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0252 STEP NO--OR/C292/70/000/001/0056/0058
CIRC ACCESSION NO--AP0130988
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0130988

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE SPECIFIC OPERATING CONDITIONS OF GENERATORS IN WIND DRIVEN POWER PLANTS ARE ANALYZED. THE REQUIREMENT FOR DESIGNING A SPECIALIZED SERIES OF CONTACTLESS SYNCHRONOUS GENERATORS OPERATING AT THE INDUSTRIAL FREQUENCY IS PROVED. THE FOLLOWING SERIES OF NOMINAL POWERS IS ADOPTED: 1, 2, 4, 8, 16, 30 KW (ROTATIONAL SPEED 1500 RPM), 60, AND 200 KW (SPEED 1000 RPM). THE TYPE OF MACHINE WITH CLAY SHAPED ROTOR AND EXTERNAL MAGNETIC CIRCUIT IS SELECTED AS BEING OPTIMAL WITH REGARD TO A COMPLEX OF TECHNICAL AND ECONOMIC CRITERIA. THE CONFIGURATION IS ENCLOSED WITH NATURAL EXTERNAL COOLING. THE BASIC TECHNICAL SPECIFICATIONS OF THE GENERATOR SERIES IS PRESENTED (FROM THE RESULTS OF PROTOTYPE TESTS). A DESCRIPTION OF THE MACHINE CONSTRUCTION IS GIVEN. THE GENERATORS OF THIS SERIES ARE AT THE LEVEL OF THE MACHINES OF THE VERY BEST CONTEMPORARY SERIES WITH REGARD TO ENERGY, WEIGHT, AND SIZE CRITERIA AND HAVE VERY HIGH RELIABILITY.

UNCLASSIFIED

Welding

USSR

UDC 621.774.2.01:621.797.7

VELIGIN, S. A., ZHUKOVSKIY, B. D., Doctor of Technical Sciences, and
ZIL'BERSHTEYN, L. I., Candidate of Technical Sciences

"Determining Technically Possible One-Hour Productivity of Electric Pipe-Welding
Stands"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 5, Sep-
Oct 70, pp 32-34

Abstract: A method for determining the one-hour productivity of electric pipe-welding stands with separate rolls, stands which stop at the time of separate roll junction, as well as continuous stands, is described. Expressions are derived from which the technically feasible one-hour productivity can be determined. The minimum admissible strip length compatible with continuous welding is given by a formula. The possible increase in productivity was determined for the case of continuous welding stands with continuous welding. Data on pipe external diameter, and on the length, width, and thickness of strip used at the Dnepropetrovsk Plant are given in tables. The relationship between the increase in productivity and the strip length in a roll is presented in a graph.

1/1

1/2 018
TITLE--THE QUESTION OF EARLY LABORATORY DIAGNOSIS OF BOTKIN'S DISEASE -U-
AUTHOR--ZILBERSHTEYN, I.O.
COUNTRY OF INFO--USSR
SOURCE--VOYENNO-MEDITSINSKIY ZHURNAL, 1970, NR 3, P 125
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--HEPATITIS, DIAGNOSTIC MEDICINE, COMPLEMENT FIXATION TEST
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/0680
CIRC ACCESSION NO--AP0134426
STEP NO--UR/0177/70/000/003/0125/0125
UNCLASSIFIED

2/2 018
 CIRC ACCESSION NO--AP0134426 UNCLASSIFIED PROCESSING DATE--27NOV70
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHOD OF THE REACTION OF
 COMBINING THE COMPLEMENT WITH NON MICROBIAL ADSORBENT IN EPIDEMIC
 HEPATITIS ACCORDING TO GIMMEL, FARB PROVIDES FOR THE PRELIMINARY
 COMBINING OF THE COMPONENT AT A TEMPERATURE OF 1-4DEGREES IN THE COURSE
 OF 18 HOURS. THEN THE TEST TUBES ARE REMOVED FROM THE REFRIGERATOR AND
 ALLOWED TO STAND FOR ONE HOUR AT ROOM TEMPERATURE. THE HEMOLYTIC SYSTEM
 STANDS FOR 30 MINUTES IN A THERMOSTAT AT 37DEGREES. AFTER THAT THE
 HEMOLYTIC SYSTEM IS ADDED TO THE TEST TUBE AND THEY ARE PLACED IN A
 THERMOSTAT AT 37DEGREES FOR 25-26 HOURS (UNTIL THE APPEARANCE OF
 HEMOLYSIS IN THE CONTROL). IN CONTRAST WITH THE GENERALLY ACCEPTED
 PROCEDURE WE HAVE PROPOSED PRELIMINARY COMBINING OF THE COMPLEMENT IN A
 THERMOSTAT AT 37DEGREES IN THE COURSE OF AN HOUR. AFTER THE HEMOLYTIC
 SYSTEM IS ADDED TO THE TEST TUBE OF THE MAIN EXPERIMENT AND THEY ARE
 PLACED IN A THERMOSTAT AT THE SAME TEMPERATURE UNTIL THE APPEARANCE OF
 HEMOLYSIS IN THE CONTROL. THE REACTION CONTINUES FOR FIVE HOURS. WE
 HAVE INVESTIGATED 113 SERUMS OF PATIENTS WITH BOTKIN'S DISEASE ACCORDING
 TO THE GENERALLY ACCEPTED METHOD AND IN PARALLEL ACCORDING TO OUR
 MODIFICATION. THE DIAGNOSIS OF BOTKIN'S DISEASE WAS CONFIRMED BY THE
 REACTION OF COMBINING OF THE COMPLEMENT ACCORDING TO THE GENERALLY
 ACCEPTED PROCEDURE IN 73.4PERCENT AND IN OUR MODIFICATION IN
 75.2PERCENT.

UNCLASSIFIED

ZIL'BERSHTEYN, M. B.

USSR

P. n. c.
ZIL'BERSHTEYN, M. B., OL'KHovSKAYA, G. N.

Pattern
D-2 recognition
UDC 51:155.001.57:681.5.06

"Application of Pattern Recognition Algorithms for Classification of Geological and Geophysical Objects"

Vopr. Vychisl. i Prikl. Mat., [Problems of Computer and Applied Mathematics-- Collection of Works], No 39, Tashkent, 1970, pp 59-65, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V681 by V. Mikheyev).

Translation: In solving geological and geographic problems, the necessity arises of differentiating a certain set of objects into subsets (groups, classes, etc) and relating the individual objects to a given class. Based on the application of quantitative characteristics as a set of characteristics of the various groups of objects, an attempt is made to solve two problems: 1) Regionalization of geophysical and structural maps, and 2) separation of anticlinal folds of various amplitudes, submerged to various depths. Twelve parameters of a rectangular matrix are suggested as coordinates for points in the field being analyzed. A method is described of representing this information at the input of any recognition algorithm considering the frequency-statistical and gradient properties of the field being studied. The characteristic features of the program are noted, allowing up to 36 classes (patterns) to be separated in the twelve-characteristic space.

JPRS 53878

USSR

UDC 51:155.001.57:681.3.06

ZIL'BERSHTEYN, M. B., OL'KHOVSKAYA, G. N.

"Application of Pattern Recognition Algorithms for Classification of Geological and Geophysical Objects"

Vopr. Vychisl. I Prikl. Mat., [Problems of Computer and Applied Mathematics--Collection of Works], No 39, Tashkent, 1970, pp 59-65, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V681 by V. Mikheyev).

Translation: In solving geological and geographic problems, the necessity arises of differentiating a certain set of objects into subsets (groups, classes, etc) and relating the individual objects to a given class. Based on the application of quantitative characteristics as a set of characteristics of the various groups of objects, an attempt is made to solve two problems: 1) Regionalization of geophysical and structural maps, and 2) separation of anticlinal folds of various amplitudes, submerged to various depths. Twelve parameters of a rectangular matrix are suggested as coordinates for points in the field being analyzed. A method is described of representing this information at the input of any recognition algorithm considering the frequency-statistical and gradient properties of the field being studied. The characteristic features of the program are noted, allowing up to 36 classes (patterns) to be separated in the twelve-characteristic space.

1/1

USSR

UDC 536.424.1:539.89:546.8

ZIL'BERSHTEYN, V. A., NOSOVA, G. I., and ESTRIN, E. I., Institute of Metal Science and Physics of Metals, Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Alpha - Omega Transformation in Titanium and Zirconium"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 3, 1973, pp 584-589

Abstract: An attempt was made to determine the positions of the thermodynamic equilibrium of the α - and ω phases in Ti and Zr. Titanium and zirconium iodides were studied by the following methods: electrical resistance, x-ray diffraction analysis of phases, dilatometry, and shear strength. The electrical resistance (given in arbitrary units) of Ti and Zr as a function of pressure (up to 90 kbar) at room temperature with a constantly changing pressure by 3 kbar/min increased constantly when the pressure was decreased to ~ 10 kbar. The breaking point for the electrical resistance increase due to α - ω transformation for Ti was a pressure of 63 kbar. A sharp decrease in the electrical resistance for Zr took place at 38 kbar. No significant changes in the electrical resistance of both metals were observed during the second cycle of compression. This indicated that the phase transformation was absent. A sharp increase in the electrical resistance of samples at $\sim 250^\circ\text{C}$ was a good

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USSR

ZIL'BERSHTEYN, V. A., et al, Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 3, 1973, pp 584-589

sign that the $\alpha - \omega$ transformation took place at this temperature. Samples subjected to pressure at room temperature also showed the presence of the $\alpha - \omega$ transformation. The x-ray diffraction analysis of these samples indicated that they consisted almost entirely of ω phase at 100 kbar pressure. Only a scant amount of α phase was present in them. The x-ray diffraction analysis data were used for calculating the lattice parameters for both metals (parameters are given). Dilatograms showed that an $\omega - \alpha$ transformation in zirconium took place at 205°C and continued to 255°C. Data on the shear strength of Ti samples indicated the presence of $\alpha - \omega$ and $\omega - \alpha$ transformations at 20 kbar pressure. This means that appearance of the ω phase in Ti at room temperature and pressure of > 20 kbar is thermodynamically possible. Temperature - pressure diagrams were plotted for both metals on the basis of obtained data.

2/2

- 54 -

1/2 010
UNCLASSIFIED
TITLE—DESUBLIMATION OF MALEIC ANHYDRIDE FROM CONVERTER (E.I.T.) GASES
FROM FURFURAL OXIDATION -U-
AUTHOR—(05)—MUSA, Z., LIYEPINA, R., SHIMANSKAYA, M.V., ZILE, J., HILLERS,
S.
COUNTRY OF INFO—USSR
SOURCE—LATV. PSR ZINAT. ADAD. VESTIS, KIM. SER. 1970, (2), 175-81
DATE PUBLISHED—70
SUBJECT AREAS—CHEMISTRY, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS—MALEIC ANHYDRIDE, FURFURAL, CATALYTIC OXIDATION, INDUSTRIAL
BYPRODUCT
CONTROL MARKING—NO RESTRICTIONS
DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAE—1999/1866
CIRC ACCESSION NO—AP0123654
STEP NO—UR/0464/T0/000/002/0175/0181
UNCLASSIFIED

2/2 010
CIRC ACCESSION NO--AP0123654 UNCLASSIFIED
ABSTRACT/EXTRACT--(U) GP-0- PROCESSING DATE--300CT70
ABSTRACT. THE DESUBLIMATION OF MALEIC
ANHYDRIDE (1) FROM CONVERTER GASES FROM CATALYTIC VAPOR PHASE OXIDN. OF
FURFURAL WAS STUDIED. EFFECT OF TEMP. AND AIR ADMIXTS. WAS STUDIED,
OPTIMAL CONDITIONS OF DESUBLIMATION WERE DETD. AND EFFICIENCY OF THE
DILN. OF THE CONVERTER GASES BY COLD AIR WAS ESTD.
INST. ORG. SIN., RIGA, USSR. FACILITY:

UNCLASSIFIED

ZILITINKEVICH, S. I.

Sergei Illarionovich Zilitinkevich, 1894- ; on his 70th birthday.
Radiotekhnika 19 no.10:73-74 0 '64.

Radio Engineering

(MIRA 17:12)

1/2 017
TITLE--WALL PANELS MADE FROM FOAMED PLASTIC --U- UNCLASSIFIED PROCESSING DATE--20NOV70
AUTHOR--(02)--ZILOV, A.G., OGONYANTS, V.A.
COUNTRY OF INFO--USSR 2
SOURCE--STRICT MATER. 1970, (2), 17
DATE PUBLISHED--70
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--CONSTRUCTION MATERIAL, FOAM PLASTIC, ASBESTOS, CEMENT,
POLYSTYRENE RESIN, EPOXY ADHESIVE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1244
CIRC ACCESSION NO--AP0128660
STEP NO--UR/0228/70/000/002/0017/0017
UNCLASSIFIED

2/2 017

CIRC ACCESSION NO--AP0128660

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PANELS WERE CONSTRUCTED CONSISTING OF ASBESTOS CEMENT EXTERNAL PLATES. THE SPACE BETWEEN THESE PLATES WAS FILLED WITH POLYSTYRENE FOAM. EPOXY RESINS WERE USED AS THE ADHESIVE.

UNCLASSIFIED

USSR

UDC: 621.396.6.017.7

ZIMA, A. A., CHERNOUSOV, L. P., CHERNOUSOVA, N. N.

"An Automatic Device for Controlling and Measuring the Temperature in a Hot-and-Cold Box"

Tr. Sib. NII metrol. (Works of the Siberian Scientific Research Institute of Metrology), 1971, vyp. 12, pp 98-102 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V284)

Translation: The paper describes a device for controlling and measuring the temperature in a hot-and-cold box in ranges of 0-600°C and -50-100°C with an accuracy of 0.5 percent of the range of a type EPV2-11A potentiometer. Résumé.

1/1

1/2 009
TITLE--DECAY V YIELDS P PLUS 1 PRIME POSITIVE PLUS 1 PRIME NEGATIVE -U-
AUTHOR--ZIMA, V.G.
COUNTRY OF INFO--USSR
SOURCE--UKR. FIZ. ZH.; 15: 251-6(FEB 1970)
DATE PUBLISHED---FEB 70
SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--VECTOR MESON, RADIOACTIVE DECAY SCHEME
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/2215
CIRC ACCESSION NO--AP0127577
STEP NO--UR/0185/70/015/000/0251/0256
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0127577

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RADIATIVE DECAYS OF THE VECTOR MESONS V YIELDS P PLUS 1 PRIME POSITIVE PLUS 1 PRIME NEGATIVE ARE CONSIDERED IN THE VECTOR DOMINANCE MODEL. THE PARTIAL WIDTHS FOR THESE DECAYS OBTAINED HEREIN SHOW THAT EXPERIMENTAL STUDY OF THESE DECAYS IS POSSIBLE.

FACILITY: DONETSK INST. OF PHYSICS AND TECH., USSR.

UNCLASSIFIED

USSR

UDC 620.10.536.48

ROMANIV, O. N., KUTSYN, M. A., and ZIMA, Yu. V., L'vov Institute of Physico Mechanics, Academy of Sciences UkrSSR

"Cold Brittleness of High-Strength Hardened Steels"

Kiev, Problemy Prochnosti, No 8, Aug 70, pp 52-57

Abstract: An investigation was made of the cold brittleness of high-carbon, chrome-silicon 40KhS, 60KhS, and 9KhS steels. Their mechanical properties were investigated on the basis of the results of short-time torsional and tensile tests at temperatures up to 77° K. The torsional strength and yield point were determined from shear stress diagrams based on the theory of elastic-plastic torsion of a round rod. The conditional yield point was computed from the value of residual stress, equal to 0.346%, which corresponds to 0.2% at tension. An accurate electron-fractographic analysis of fracture surfaces showed that specific drops on yield curves which were observed with low-temperature tempered steels, are related primarily to changes in the mechanism of plastic deformation of high-carbon steel martensite from slip to twinning.

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USSR

ROMANIV, O. N., et al, Problemy Prochnosti, No 8, Aug 70, pp 52-57

A number of tongue-shaped diggings and crests on cleaved surfaces, attesting to the appearance of twins on the fracture surface, were observed on the fractograms. It is concluded that the twinning processes contribute to an increase in steel plasticity in the range of low-temperature brittle failure, and at the same time, they contribute to a substantial reduction of plasticity during ductile failure. The mechanical properties of the steels considered are presented in graphs.

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1/2 013
UNCLASSIFIED
TITLE--NATURE OF THE 475DEGREES BRITTLENESS OF HIGH CHROMIUM STEELS -U-
PROCESSING DATE--02OCT70
AUTHOR--(04)--SHULGA, N.G., ZAMORA, M.F., PALASH, V.N., ZIMA, YU.V.
COUNTRY OF INFO--USSR
SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (2), 51-3
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--HIGH CHROMIUM STEEL, METAL BRITTLENESS, ALLOY
DESIGNATION/(U)KH17 HIGH CHROMIUM STEEL, (U)KH25 HIGH CHROMIUM STEEL,
(U)KH28 HIGH CHROMIUM STEEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REFL/FRAME--1988/1289
STEP NO--UR/0129/70/000/002/0051/0053
CIRC ACCESSION NO--AP0106070
UNCLASSIFIED

2/2 013

CIRC ACCESSION NO--AP0106070
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--02OCT70

ABSTRACT. THE INVESTIGATION CONFIRMED THE PRESENCE OF 2 TYPES OF PHENOMENA LEADING TO THE 475DEGREES BRITTLENESS IN HIGH CR STEELS KH17 AND KH28 WHICH WAS EARLIER OBSERVED IN KH25. (1) WHILE HOLDING AT BRITTLENESS TEMP. UP TO 1 HR, FORMATION OF AN ORDERED ZONE TAKES PLACE WHICH LOWERS PLASTICITY, MAINLY IN THE LIMITS OF THE CHROME FERRITE SECTION. (2) WITH FURTHER HOLDING TIME, AN INTRAPHASE DECOMP. OF FERRITE TO 2 SOL. SOLNS. ALL ALONG THE GRAINS WAS OBSD. WHICH WERE DIFFERENT IN COMPN. FROM CR. THE LARGEST EFFECT ON EMBRITTLEMENT WAS HOMOGENEITY OF THE SOL. SOLN. WITH INCREASE IN INHOMOGENEITY OF THE DISTRIBUTION OF CR, THE EMBRITTLEMENT PROCEEDS FOLLOWING ONLY SEVERAL MIN OF HEATING AT 450-520DEGREES.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--SOME CHARACTERISTICS OF CRACK PROPAGATION IN QUENCHED ,CHROMIUM,
STEELS DURING DELAYED FAILURE -U-
AUTHOR-(03)-ROMANIV, G.N., DUDIN, V.A., ZIMA, YU.V.
COUNTRY OF INFO--USSR
SOURCE--FIZ. KHIM. MEKHA. MAT., 1970, 6, (1), 25-30
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--ELECTRON MICROSCOPY, CHROMIUM STEEL, CRACK PROPAGATION, STEEL
QUENCHING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3003/0158 STEP NO--UR/0369/70/006/001/0025/0030
CIRC ACCESSION NO--AP0129414
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129414

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROPAGATION OF DELAYED FAILURE CRACKS IN QUENCHED CR STEELS WITH A RELATIVELY HIGH C CONTENT WAS STUDIED. THE GROWTH OF THE DELAYED FAILURE CRACKS WAS SENSITIVE TO THE FORM AND NATURE OF THE HEAT TREATMENT APPLIED TO THESE MATERIALS, REACTING IN DIFFERENT WAYS, FOR EXAMPLE, TO HIGH TEMP, THERMOMECHANICAL TREATMENT AND THE PRESENCE OF AN ACTIVE MEDIUM. THE MECHANISMS ACTING AT TWO KEY STAGES OF THE PROCESS (INITIAL CRACK GROWTH AND ULTIMATE FAILURE OR COLLAPSE) ARE DISCUSSES ON THE BASIS OF ELECTRON MICROSCOPE EXAMINATION.

UNCLASSIFIED

USSR

UDC: 541.1+669.225+660.48.5+539.16

SKLYARENKO, I. YA., MALININ, G. F., PRISELKOV, YU. A., ZEMAROV, I. YE.,
and SPITSYN, VIKT. I., Department of Radiochemistry, Moscow State
University; Institute of Physical Chemistry, Academy of Sciences USSR

"Vaporization of Silver Under Beta-Irradiation of the Evaporating Surface"

Moscow, Vestnik Moskovskogo Universiteta, Seriya II. Khimiya, no. 6,
vol. 11, Nov-Dec 70, pp 737-739

Abstract: A number of earlier papers have been devoted to the effect of both external and internal irradiation on the vaporization of various substances. Most investigations, however, were conducted under conditions of inadequately high vacuum and in atmospheres of residual gases which, combined with radiation, could have had specific effects on the metal's surface. The objective of this study was vaporization of pure silver under β -irradiation of its surface under high vacuum of $1 \cdot 10^{-8}$ - $5 \cdot 10^{-9}$ tor. The irradiation source was an equilibrium mixture ^{90}Sr - ^{90}Y applied by

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vaporization. surface purity and hardly any effect on the process and kinetics of strength of β -irradiation of silver under conditions of high-vacuum and The experimental data and the derived equations show that the employed effusion chamber proper was made from aluminum which was inert to silver. components of residual gases were CO , H_2 and a small amount of H_2O . The to 1157°C . Vacuum was produced by a heterodyne beat frequency oscillator equipped mass spectrometer (omission) calibrated for silver within 130μ pressure by effusion. The effusive flow was measured by a specially The measurements were made by a device designed for determining vapor ceramic cover of the effusion chamber. The radiation dosage was 32 rad/sec . sintering, in the form of strontium oxide, to the inner surface of the

SILYANENKO, I. YA., et al., Vestnik Moskovskogo Universiteta, Seriya II, Khimiya, no. 6, vol. 11, Nov-Dec 70, pp 737-739

USSR

Transformation and Structure

USSR

UDC: 546.3-19 + 546.56 + 546.681

SKYARENKO, I.YA., PRISELKOV, YU.A., ZIMAKOV, I.YE., MATERN, G., SAPOZHNIKOV, YU.A.,
TSEPLYAYEVA, A.V., and SPITSYN, V.I., Institute of Physical Chemistry, Moscow
Academy of Sciences USSR, and Moscow State University imeni M. V. Lomonosov,
Moscow Ministry of Higher and Secondary Specialized Education USSR

"Evaporation of the Copper-Gallium Alloy in the Field of Phase Transformations"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4, Apr 70, pp 757-761

Abstract: Partial vapor pressures of copper and gallium were determined over copper-gallium (15.5 at-%) alloy in the temperature interval 1171-1395°K. Experimental data plotted as log p vs the inverse temperature show that the functions are not linear, but complex curves with many extrema, exceeding considerably any possible experimental error. The partial pressure curve of gallium exhibited such anomalies much more than did copper and they appeared in liquid, heterogeneous, and solid phases. In the fusion process the partial pressure of copper vapor was noticed to drop. Contrary to some reported data, radioactivity did not affect markedly the behavior of copper vapor, except that the rate of the drop in partial pressure of copper vapor was increased. On the basis of differential-thermal analysis, phase conversions were determined to take place at: 1296±3°K, 1196±3°K, 1299±3°K, and 1236±3°K. The authors thank N.G. Savostina for participating in the research.

1/1

1/2 009 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--DETERMINATION OF TRACE AMOUNTS OF CESIUM BY REPEATED ISOTOPIC
DILUTION WITH CESIUM 137 WITHOUT A CARRIER -U-
AUTHOR--(03)-POMERANTSEVA, A.V., ZIMAKOV, I.YE., SPITSYN, V.I.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER KHIM. 1970, (1) 3-7
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--ISOTOPE, CESIUM MICROCHEMICAL ANALYSIS, SOLVENT EXTRACTION,
QUALITATIVE ANALYSIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0586 STEP NO--UR/0062/70/000/001/0003/0007
CIRC ACCESSION NO--AP0105569
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105569

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ISOTOPE DILN. TECHNIQUE WAS USED SATISFACTORILY FOR DETN. OF PRIME137 CS IN MICROQUANTITIES WITHOUT THE USE OF A CARRIER. THE ISOLATION OF CS WAS DONE BY EXTN. IN THE SYSTEM OF MG DIPICRYLAMINATE AND PHND SUB2 IN 0.02N NAOH SOLN. THE EXTN. WAS SUBSTANTIALLY COMPLETE FOR 100-1000 MUG CS IN THE SAMPLE. THE EXT. IN PHND SUB2 REQUIRED SOME 20 MIN FOR THE ACTUAL EXTN. FOR CDNCN. OF 1-10 MUG CS-ML NO MORE THAN 3-5 INDEPENDENT DILNS. ARE NEEDED FOR OBTAINING DEPENDABLE DATA. THE METHOD INSURES DETN. OF PRIME137 CS WITH MEAN ERROR OF SMALLER THAN OR EQUAL TO 2.5PERCENT.

UNCLASSIFIED

USSR

GENERALOV, N. A., ZILAEV, V. P., KOZLOV, G. I., MASYUNOV, V. A.,
and RAYZER, Yu. P.

"Experimental Investigation of Continuously Heated Optical Dis-
charges"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol. 61,
No. 4(10), October 1971, pp 1434-1446

Abstract: This article is the consequence of a letter written to the editor of the ZHETF (Journal of Experimental and Theoretical Physics) by the authors named above, in which they reported obtaining a continuously heated optical discharge in gases at pressures of the order of several atmospheres. The discharge plasma occurs at the center of a gas volume far from all solid surfaces, emits a blinding white light, and lasts as long as energy fed it by an input laser beam lasts. The present article provides the results of the first experimental investigation of some characteristics of this continuous optical discharge. It discusses the existence limits of the discharge's unattenuated mode and their dependence on the power of the light and the pressure of various gases, the stability of the heating for various beam configurations, and the determination of the shape and dimensions of the plasma. The part
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USSR

GENERALOV, N. A., et al, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol. 61, No. 4(10), October 1971, pp 1434-1446

of the laser beam energy absorbed by the discharge is measured, and the plasma discharge is analyzed by measuring the electron density through the spectroscopic method and estimating the plasma temperature. The authors express their thanks to A. E. Abaliyev for his assistance in setting up the experimental apparatus and conducting the experiments. They are associated with the Institute of Mechanical Problems, Academy of Sciences, USSR.

2/2

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1/2 045 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--A METHOD FOR INFRARED DIAGNOSTICS OF A PLASMA AND ITS APPLICATION
FOR INVESTIGATION OF IONIZATION AND RECOMBINATION OF XENON BEHIND THE
AUTHOR--(03)-GENERALOV, N.A., ZIMAKOV, V.P., KOZLOV, G.I.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 6, PP 1928-1937
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SHOCK WAVE, XENON, PLASMA ELECTRON TEMPERATURE, GAS STATE, ION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2236

STEP NO--UR/0056/70/058/006/1928/1937

CIRC ACCESSION NO--AP0125814

UNCLASSIFIED

2/2 045

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0125814

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD IS DESCRIBED FOR DETERMINATION OF THE ELECTRON TEMPERATURE AND ELECTRON CONCENTRATION PROFILES BEHIND THE FRON OF A SHOCK WAVE. IT IS BASED ON SIMULTANEOUS MEASUREMENT OF EMISSION AND ABSORPTION BY THE IONIZED GAS IN THE INFRARED REGION OF THE SPECTRUM (λ EQUALS 10.6 MICRONS). RESULTS OF AN EXPERIMENTAL INVESTIGATION OF IONIZATION AND RECOMBINATION PROCESSES IN XENON AT T EQUALS 8200-92000 DEGREE K ARE PRESENTED. GOOD AGREEMENT BETWEEN THE EXPERIMENTAL DATA AND RECOMBINATION THEORY BASED ON A MODIFIED FOKKER-PLANCK THEORY IS OBTAINED. FACILITY: INSTITUT PROBLEM MEKHANIKI AN SSSR.

UNCLASSIFIED

1/2 077 UNCLASSIFIED PROCESSING DATE--300CT70
TITLE--BREAKDOWN OF GASES UNDER THE INFLUENCE OF THE LONG WAVE INFRARED
RADIATION OF A CARBON DIOXIDE LASER -U-
AUTHOR--(05)--GENERALOV, N.A., ZIMAKOV, V.P., KOZLOV, G.I., MASYUKOV, V.A.,
RAYZER, YU.P.
COUNTRY OF INFO--USSR
SOURCE--PISMA ZH. EKSP. TEOR. FIZ. 1970, 11(7), 343-6
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CARBON DIOXIDE LASER, CHEMICAL PURITY, ARGON, HELIUM, NEON, IR
RADIATION, RUBY LASER, NEODYMIUM LASER, IONIZATION, XENON, LUMINESCENCE,
LASER INDUCED PLASMA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1133

STEP NO--UR/0386/70/011/007/0343/0346

CIRC ACCESSION NO--AP0123123

UNCLASSIFIED

2/2 077

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123123

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PULSES (50-250 HZ, 0.3-1.5 MUSEC, PEAK OUTPUT 10 KW) OF THE 10.6-MU RADIATION OF A LASER BASED ON THE CO SUB2-N-HE MIXT., WORKING WITH CONTINUOUS PUMPING, WERE USED TO STUDY THE BREAKDOWN OF AR, NE, HE, AND XE AT LESS THAN 25 ATM. THE BREAKDOWN FREQUENCY WAS GREATER THAN 10 HZ; THE GAS LUMINESCENCE IN THE BREAKDOWN REGION WAS CONTINUOUS. THE FORMS OF THE INCIDENT, PASSING THROUGH THE BREAKDOWN PLASMA, AND REFLECTED (FROM THE PLASMA) PULSES AS WELL AS A VISIBLE LUMINESCENCE OF THE PLASMA WERE RECORDED SIMULTANEOUSLY. THE BREAKDOWN DEVELOPED FOR APPROXIMATELY EQUAL TO 0.1 MUSEC. THE LUMINESCENCE DURATION WAS LONGER THAN THAT OF THE PULSES AND SHORTER BY SIMILAR TO 3 ORDERS THAN THE BREAK BETWEEN THE PULSES. THE BEGINNING OF APPEARANCE OF RARE VISIBLE FLASHES WAS CONSIDERED A THRESHOLD; MOST RELIABLE MEASUREMENTS OF THE THRESHOLD INTENSITY WERE OBTAINED FOR XE. AT VARIANCE WITH XE, THE THRESHOLD IN HE INCREASES CONSIDERABLY WITH INCREASING GAS PURITY. THE SPARKS IN AR, HE, AND NE LIGHT LONGER THAN IN XE AND THE REFLECTION AND ABSORPTION OF THE PULSES IS SMALLER. THE XE ATOMS ARE IONIZED AND AT HIGHER PRESSURES, THE ELECTRON D. REACHES A CRIT. VALUE OF 1.13 TIMES 10^{19} -CM 10^{13} . THE THRESHOLDS MEASURED ARE DISCUSSED ON THE BASIS OF AN AVALANCHE IONIZATION. THE AVALANCHE DEVELOPS IF THE ENERGY GAIN RATE EXCEEDS THE TOTAL RATE OF LOSSES. THE THRESHOLD CORRESPONDS TO AN ELECTRON D. STABILITY, IN CONTRADICTION TO THE SHORT GIANT PULSES OF THE RUBY AND Nd LASERS. FACILITY: INST. PROBL. MEKH., MOSCOW, USSR.

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ANTICOAGULANT ACTIVITY OF RARE EARTH SALTS -U-

AUTHOR--(05)--LAKIN, K.M., ZIMAKOV, YU.A., PLYUSHCHEV, V.YE., NADEZHINA,
G.V., LOSEVA, G.S.

COUNTRY OF INFO--USSR

SOURCE--FARMAKOL. TCKSIKOL. (MOSCOW) 1970, 33(2), 205-10

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANTICOAGULANT DRUG, RAT, RABBIT, BLOOD CHEMISTRY, HEPARIN,
RESPIRATION, RARE EARTH COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0367

STEP NO--UR/0390/70/033/002/0205/0210

CIRC ACCESSION NO--AP0127948

UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127948

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. I.V. ADMINISTRATION TO RATS AND RABBITS OF PROPIONATES OF DY, LA, TB, Y, HO, ER, ND, GD, YB, CE, PR, LU, AND SM AT 0.5 ML 2PERCENT AQ. SOLN.-KG INCREASED FREE HEPARIN CONTENT IN BLOOD BY DEGRADATION OF MAST CELLS, THUS LESSENING COAGULABILITY. THERE WAS NO APPRECIABLE EFFECT ON ARTERIAL TENSION OR RESPIRATION. FACILITY: II. MOSK. MED. INST. IM. PIROGOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--INFLUENCE EXERTED BY ETHYLENEDIAMINETETRAACETIC ACID (EDTA) ON THE
ANTICAGULANT PROPERTIES AND DYNAMICS OF SCANDIUM EXCRETION FROM THE
AUTHOR--(05)--LAKIN, K.M., ZIMAKOV, YU.A., MENKOV, A.A., BOCHAROVA, R.I.,
TSZYU, N.P.
COUNTRY OF INFO--USSR
SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(1), 87-90
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--SCANDIUM, RABBIT, BLOOD COAGULATION, KIDNEY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1994/1157 STEP NO--UR/0390/70/033/001/0087/0090
CIRC ACCESSION NO--AP0115176
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0115176

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. SC ACETATE ADMINISTERED I.V. TO RABBITS AT 20 MG-KG DECREASED BLOOD COAGULATION, WITH THE MAX. EFFECT ACHIEVED AFTER 2 HR AND LASTING FOR GREATER THAN 6 HR. THE ANTICOAGULANT PROPERTIES WERE LESS THAN THOSE OF THE LANTHANIDES AND Y. SC BLOOD CONC. GRADUALLY DECREASED FOR THE 1ST FEW DAYS AFTER ADMINISTRATION, AND AFTER 1 DAY SIMILAR TO 20PERCENT OF THE ELEMENT HAD BEEN EXCRETED THROUGH THE KIDNEYS. EDTA COMBINED WITH SC ACETATE HAD ALMOST NO EFFECT ON THE BLOOD SC CONC, BUT SHARPLY INCREASED ITS RENAL EXCRETION AND SHARPLY REDUCED ACUTE TOXICITY AND ANTICOAGULANT ACTION.

FACILITY: TSENT. NAUCH.-ISSLED. LAB., MOSK. MED. INST. IM.
PIROGOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 528.711.089.6

ZIMAN, YA. L., Space Research Institute, Academy of Sciences USSR

"Technique for Photogrammetric Calibration of Recording Cameras"

USSR Author's Certificate No 363065, Cl. G 03b 43/00, filed 6 May 71, published 20 Dec 72 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 3, 1973, pp 93-94)

Abstract: The technique involves measuring the horizontal directions to the point marks of a calibrated grid mounted in the focal plane of the camera's objective by means of a theodolite which is moved forward in front of the camera objective, with the horizontal limb of the theodolite oriented along the datum line. The unique feature is that, to permit the calibration of recording cameras mounted on a carrier, the horizontal and vertical directions to the point marks of the calibrated grid are measured by a theodolite which is moved as the telescope is set at the marks in three mutually perpendicular directions. The horizontal limb of the theodolite is oriented by reciprocal sighting to the second theodolite, which is securely mounted at an arbitrary point and has its horizontal limb oriented with respect to the datum line.

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USSR

UDC 528.711.11.089.6

ZIMAN, YA. L., KRASIKOV, V. A., DUNAYEV, B. S., and SIL'VA-BEGA, A. A.

"Photogrammetric Calibration of Photographic Systems by Means of a Progressively Movable Theodolite"

Moscow, Geodeziya i Kartografiya, No 5, May 1973, pp 54-60

Abstract: A procedure is described, by means of which compensation is provided for distortion introduced into the photographic image by the passage of rays through the porthole in the sealed bays of camera carriers conducting aerial and space photography. In this procedure, conducted when the cameras are being mounted in the carriers, the photographic system is calibrated with respect to the corresponding porthole by measuring, with a progressively movable theodolite, the directions to the points of a standardized grid situated in the focal plane of the calibrated camera. Measurements are conducted through the porthole of the carrier and the camera lens. The theodolite is placed in front of the lens of the calibrated camera, and by means of a special support is moved progressively from station to station, in parallel to the focal plane of the camera. A geometric diagram of the solution of the problem is presented, as well as practical data of calibration of the stellar camera of the "Salyut" orbital station. 2 tables. 4 figures. 5 references.

1/1

USSR

UDC 612.822.3.08

BATUYEV, A. S., VASILEVSKIY, N. N., ZIMENKO, N. V., TAIROV, O. P., and KARAMYAN, L. A., Laboratory of the Physiology of the Motor Analysor, Physiological Institute imeni A. A. Ukhtomskiy, Leningrad University, and Department of Ecological Physiology, Institute of Experimental Medicine, Academy of Medical Sciences USSR

"A Simple Method of Recording Cerebral Neuronal Activity in Alert Animals"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 58, No 11, 1972, pp 1774-1776

Abstract: In preliminary surgery performed on the anesthetized animal, the head is held in a standard stereotaxic apparatus, the frontal bones (if the frontal cerebral lobes are to be investigated) are opened and the periosteum is removed, two screws are firmly implanted in each temporal bone, and the edges of the wounds are sealed with protacrylon. Penicillin is administered, and a certain period is allowed for recovery from surgery. Prior to the actual experiments, the animal is trained for several days to become accustomed to the motionless position in the modified stereotaxic instrument SEZh-1 or SEZh-2. During the test, the head is affixed to the stereotaxic instrument by means of the implanted screws. Holes are drilled in the frontal bones (painless

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USSR

BATUYEV, A. S., et al., Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, Vol 58, No 11, 1972, pp 1774-1776

because of absence of periosteum), a local anesthetic is applied to the dura mater, the meninges are pierced, the recording electrode is inserted into the brain (with one of the implanted screws serving as the indifferent electrode), and the edges of the wound are covered with warm vaseline or agar. After completion of the test and withdrawal of the electrode, the opening is sealed with wax or dental cement. If proper antiseptic measures are taken, one chronic animal can be used for over 2 months, with three experiments performed each week.

2/2

USSR

UDC 621.382.2

BORODOVSKIY, P. A., BULDYGIN, A. F., ZIMENKOV, V. A., Institute of Physics of Semiconductors, Siberian Department of the Academy of Sciences of the USSR, Novosibirsk

"Effect of a Magnetic Field on the Domain of a Strong Field in a Gunn Diode"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 5, No 9, Sep 71, pp 1706-1709

Abstract: Experiments are done which show that a transverse external magnetic field has an appreciable effect on the frequency and output power of a Gunn oscillator. It is found that the emission frequency in a transverse field is increased by a reduction in domain capacitance due to domain broadening. An increase in emission frequency by more than 35 percent was observed for one of the diodes when the transverse magnetic field strength was varied from 0 to 18,000 oersteds. The threshold voltage and frequency remain practically unchanged in a longitudinal magnetic field. With an increase in field strength, the emission power at the oscillator output decreases in both transverse and longitudinal fields.

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USSR

UDC 541.15 : 546.287 : 547.539.162

ZIMIN, A. V., VAYNSHTEYN, B. I., SIL'CHENKO, YU. I., Physicochemical Institute imeni L. Ya. Karpov, Moscow, State Committee for Chemistry

"Radiation-Induced Synthesis of Perfluorophenylchlorosilanes"

Moscow, Khimiya Vysokikh Energiy, Vol 4, No 5, Sep-Oct 70, pp 419-424

Abstract: The article describes results of a study of the radiation-induced synthesis of previously undescribed methylpentafluorophenyl-dichlorosilane $(CH_3)_3C_6F_5SiCl_2$ and pentafluorophenyltrichlorosilane $C_6F_5SiCl_3$ -- compounds which are perfluorophenyl analogs of methylphenyldichlorosilane and phenyltrichlorosilane, synthesized by A. V. ZIMIN, et al. The radiation-induced synthesis is based on the method previously suggested by ZIMIN, et al. for the condensation reaction of hydriochlorosilanes with halogenated benzenes under the action of ionizing radiation by a chain mechanism. The optimal physicochemical conditions for the radiation-induced synthesis of these compounds are determined, including the use of a

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USSR

ZIMIN, A. V., et al, Khimiya Vysokikh Energiy, Vol 4, No 5, Sep-Oct 70, pp 419-424

reactor employing steel 1Kh18N9T. An advantage of the method is that, unlike ordinary chemical methods for the synthesis of organo-silicon monomers, there is no need for costly catalysts or high temperatures or many synthesis steps. The most important physico-chemical constants of the resultant compounds are determined.

2/2

1/2 031 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--IODINATED PERFLUOROCARBONS -U-

AUTHOR--(03)-ZIMIN, A.V., VAYNSHTEYN, V.I., BUCHNEVA, A.P.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 173,213

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKIL970, 47(9),
DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--IODINATED ORGANIC COMPOUND, IONIZING RADIATION, GAMMA
RADIATION, X RAY, FLUORINATED ORGANIC COMPOUND, CHEMICAL PATENT, ORGANIC
SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3007/0838

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136272

UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0136272

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IODINATED PERFLUOROCARBONS ARE
PREPD. FROM CRYST. I AND LIQ. UNSATD. PERFLUOROCARBONS, IN A
PSEUDOBUILDING CONDITION OR DURING INTENSIVE MIXING, WITH IONIZING
IRRADN., E.G. GAMMA NEGATIVE OR X RAYS.

UNCLASSIFIED

USSR

UDC 621.396.677

ZIMIN, D. B., LOSEV, V. S.

"Study of Antennas with Frequency Rocking of the Beam"

Tr. Mosk. aviats. in-ta (Works of the Moscow Aviation Institute), 197, vyp. 215, pp 217-254 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B30)

Translation: The limiting characteristics of linear antennas with frequency rocking of the directional diagram are defined. There are 19 illustrations, 2 tables and a 10-entry bibliography.

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ZIMIN, E. P.

OPTICAL METHOD OF MEASURING THE PARAMETERS OF A DISPERSE CONDENSED PHASE OF TWO-PHASE FLOWS

Abstract of a Paper by E. P. Zimin, O. V. Ivanchenko, A. H. Krugerskiy, E. G. Alkhmeich given at the Symposium on Hydrodynamic Conference, pp 243-246.

By using the results of measuring the scattering of light at low angles of particles of a condensed phase in two-phase flow simultaneously with determination of the distribution function by the sizes of these particles. As is known, the condition of scattering of light by a polydisperse system of particles under the condition of $\pi a/\lambda \gg 1$ is defined by the expression:

$$I(\theta) = \frac{c}{4} \int_0^{\pi} \int_0^{2\pi} J_1^2\left(\frac{\pi a}{\lambda} \theta\right) n(a) da, \quad (1)$$

where a is the particle diameter; λ is the wave length of the incident radiation; I_0 is the incident light intensity; θ is the scattering angle; J_1 is the first-order Bessel function of this first type and $n(a)$ is the particle concentration with dimensions from a to $a + da$. K. S. Shifrin proposed the following solution to the integral equation (1):

$$c n(a) = \frac{8\pi^2}{\lambda^2} \int_0^{\pi} \frac{d}{d\theta} \left[I(\theta) \frac{\pi a}{\lambda} \theta \right] J_1\left(\frac{\pi a}{\lambda} \theta\right) Y_1\left(\frac{\pi a}{\lambda} \theta\right) d\theta. \quad (2)$$

Here Y_1 is the first-order Bessel function of the second type. Thus, by measuring the index of scattering of the light by a polydisperse system of particles of the condensed phase in a two-phase medium, it is possible to obtain the distribution function of the scattering particles with respect to size with accuracy to a constant factor.

However, giving the magnitude of the solid angle Ω from which the scattered light is recorded and the magnitude of the scattering volume V , it is possible to determine the absolute value of the function $n(a)$. Then the calculated concentration is defined by the integral $n = \int n(a) da$.

SPRS 60634
77 November 1973

USSR

UDC[621.362:538.4]-16:669-404:532.5.001.1

ZIMIN, E.P., EYSMONT, O.A.

"Some Problems Of Laminar Magnetohydrodynamic Flow"

V sb. Teplotekhn. probl. priamogo preobrazov. energii (Heat-Engineering Problems Of Direct Energy Conversion--Collection Of Works), Issue 2, Kiev, "Nauk.dumka," 1971, pp 87-95 (from RZh--Elektrotekhnika i energetika, No 12, Dec 1971, Abstract No 12A185)

Translation: A theoretical study is made of the movement of alternating layers of conducting liquid and nonconducting gas in a transverse magnetic field, and the flow of an inhomogeneous conducting gas in a transverse magnetic field. The effect of turbulent diffusion is evaluated. 3 ill. 3 ref. [Power Engineering Institute im. G.M. Krzhizhanovskiy, Moscow]

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Acc. Nr:

AM 0042595

Abstracting Service: 4.16

Ref. Code:

INTERNAT. AEROSPACE ABST.

UR0000

A70-20765 Practical aerodynamics and flight vehicles
(Prakticheskaya aerodinamika i letatel'nye apparaty). G. V. Zimin
Moscow, Voennoe Izdatel'stvo Ministerstva Oborony SSSR, 1969.
327 p. 22 refs. In Russian.

The book discusses problems of practical aerodynamics arising
in connection with supersonic aircraft, the theory of sweptback
wings, military aviation and satellites. The aerodynamic character-
istics of supersonic flight are examined and the piloting of supersonic
aircraft at takeoff and landing is discussed. Aspects of stability and
control are considered. Questions of celestial mechanics are
examined.

G.R.

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REEL/FRAME
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AM9 049132

Zimin, G. V.

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Practical Aerodynamics and Aircrafts (Prakticheskaya aerodinamika i letatel'nyye apparaty) Moscow, Voenizdat, 1969, 326 pp (SI:1197)

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USSR

UDC 547.26'118

PUDOVIK, A. N., ZIMIN, M. G., YEVDOKIMOVA, V. V., Kazan' State University
imeni V. I. Ul'yanov-Lenin

"Reaction of α - and β -Ketophosphonates With Compounds Containing Labile
Hydrogen Atoms"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 1907-1910

Abstract: It was shown that dimethyl- and diethylphosphonoacetone is capable of condensing with cyanoacetic ester and dinitrile of malonic acid forming the diethyl ester of 2-methyl-3-cyano-3-carboethoxyallylphosphonic acid and the dialkyl ester of 2-methyl-3-cyano-3-carbamidoallylphosphonic acid. The reaction of chloral and benzaldehyde with the dibutyl esters of aceto- and benzoylphosphonic acids and N,N-tetraethyldiamidoacetophosphonic acid take place at the carbonyl groups of the latter, forming dibutyl α -trichloroacetoethyl(benzoylbenzyl)phosphates and N,N-tetraethylalkyldiamido-phosphates.

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UDC 547.26'118

USSR

PUDOVIK, A. N., ZIMIN, M. G., SOBANOV, A. A., and EVSTAF'YEV, G. I., Kazan'
State University imeni V. I. Ul'yanov-Lenin

"Reactions of α -Hydroxyallylphosphonic Esters"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 1910-1915

Abstract: It was shown that the dimethyl ester of α -hydroxyallylphosphonic acid upon heating with catalytic amounts of alkoxides or trimethylamine are converted to the propionate of the dimethyl ester of α -hydroxyallylphosphonic acid. A route of the formation of the propionate was proposed including the initial isomerization of the α -hydroxyallylphosphonic ester into the ester of propionephosphonic acid followed by its reaction with a second molecule of α -hydroxyallylphosphonic ester. It was shown that the reaction of α -ketophosphonic acid esters with α -hydroxyalkylphosphonates takes place with the formation of dialkyl phosphites, esters of carboxylic acids, and dialkyl esters of α -dialkylphosphonalkylphosphonic acid. Heating the dialkylesters of α -hydroxyallylphosphonic acid in acetic acid or anhydride in presence of sulfuric acid leads to their acetylation.

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USSR

UDC 547.26'118

PUDOVIK, A. N., ZIMIN, M. G., and SOBANOV, A. A., Kazan' State University
imeni V. I. Ul'yanov-Lenin

"Reactions of Dialkyl Phosphites With Ketones Activated by Electronegative
Groups"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 10, 1972, pp 2174-2180

Abstract: As a result of the reaction of dimethyl- and diethyl phosphites with 2-carboethoxycyclopentanone, 2-carboethoxycyclohexanone, diethylphosphonoacetone, desoxybenzoin, and the nitrile of alpha-phenylacetoacetic acid, in the presence of diethylamine, 1-hydroxy-2-carboethoxycyclopentyl (or hexyl)-, 1-hydroxy-2-diethylphosphonoisopropyl-, 1-hydroxy-1,2-di-phenylethyl-, and 1-hydroxy-2-cyano-2-phenylisopropylphosphonates were formed. Structures of the products were confirmed by elemental analysis and IR and NMR (Nuclear Magnetic Resonance) spectra, and various characterizing constants were determined. The presence of hydroxyl groups was also confirmed by reacting the esters with acetic anhydride or acetyl chloride; the constants of the resulting acetates were determined, and their IR and NMR spectra taken. On heating these esters in the presence of alkali metal alkoxides or without a catalyst, decomposition to their
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USSR

PUDOVIK, A. N., et al., Zhurnal Obshchey Khimii, Vol 42(104), Vyp 10, 1972, pp 2174-2180

original components and sometimes partial dehydration were observed, rather than a phosphonatephosphate rearrangement. Heating dialkyl 1-acetoxy-2-diethylphosphonoisopropyl-, and 1-acetoxy-2-carboethoxycyclopentyl(or hexyl)phosphonates in the presence of sodium carbonate yielded dialkyl 2-diethylphosphonopropenyl- and 2-carboethoxycyclopentenyl(or hexenyl)-phosphonates. It was demonstrated that on reacting alpha-hydroxyalkylphosphonates with thionyl chloride dialkyl alpha-chloroalkylphosphonates are formed, which eliminate hydrochloric acid on heating with pyridine to form vinylphosphonates.

2/2

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USSR

UDC 547.26'118

PUDOVIK, A. N., ZIMIN, M. G., SOBANOV, A. A., VINOGRADOV, L. I., and SAMITOV, Yu. Yu., Kazan' State University imeni V. I. Ul'yanov-Lenin

"Reaction of Dialkyl Phosphites With Ethyl Acetoacetate and the Dehydration of Esters of Alpha-hydroxyalkylphosphonic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 10, 1972, pp 2167-2174

Abstract: As a result of the reaction of dimethyl, di-n-propyl, diisopropyl, di-n-butyl phosphites and the partial ethyl ester of phenylphosphorous acid with ethyl acetoacetate in the presence of diethylamine, dialkyl alpha-hydroxy-beta-carbethoxyisopropylphosphonates and the ethyl ester of alpha-hydroxy-beta-carbethoxyphenylisopropylphosphonic acid were formed. The IR and PMR (Proton Magnetic Resonance) spectra of the products were studied and constants recorded. The PMR spectrum of the diethyl ester showed that it had two nonequivalent hydrogen atoms at the beta carbon, said to be due to an internal hydrogen bond. The concentration dependence of the IR spectrum of this compound was reported to indicate intermolecular bonds between the phosphorus-oxygen double bond and the hydroxyl group in the solid state and concentrated solutions. This was confirmed by ebullioscopy and cryoscopy. On heating the esters with a catalytic amount.

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USSR

PUDOVIK, A. N., et al., Zhurnal Obshchey Khimii, Vol 42(104), Vyp 10, 1972, pp 2167-2174

of piperidine or sodium alkoxide they were dehydrated to dialkyl alpha-methyl-beta-carbethoxyvinylphosphonates. The capacity for this dehydration depends on the presence of a mobile methylene group. Beta-dialkylphospho-beta-butyrolactone was also formed as an impurity from more vigorous thermal action, but could be converted to the vinyl ester by heating with ethanol in the presence of sodium ethoxide. The dehydration was also carried out by heating in the presence of sodium carbonate.

2/2

- 33 -

UDC 547.26*118

USSR

PUDOVIK, A. N., ZIMIN, M. G., YEVDOKIMA, V. V., Kazan' State University imeni V. I. Ul'yanov-Lenin

"Reactions of α -Ketophosphonates with Ethyl Cyanoacetate and Malononitrile"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, pp 1489-1493

Abstract: Continuing their research on the activity of the carbonyl group in addition reactions with α -ketophosphonic acid esters, the authors studied the behavior of these phosphonates with ethyl cyanoacetate and malononitrile. Reactions of diethyl aceto- and benzoylphosphonates with ethyl cyanoacetate at 120°C in the presence of catalytic quantities of piperidine or diethylamine produced diethyl α -methyl(phenyl)- β -cyano- β -carboethoxyvinylphosphonates in 26-27% yield. The reactions are accompanied by considerable tarring and formation of large quantities of low-boiling fractions. The resultant vinylphosphonates (II) were identified by ultimate analysis and their IR spectra. Malononitrile reacted with dimethyl, diethyl, di-n-propyl and diisopropyl acetophosphonates, and with diethyl and di-n-butyl benzoylphosphonates. Addition of catalytic quantities of piperidine to the initial mixture of components causes heating to 70-100°C. The reaction products in the case of the dialkyl acetophosphonates were dialkyl α -methyl- β -car-

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pp 1489-1493

amido- β -cyanovinylphosphonates (V). The reactions with benzoylphosphonates
yielded dialkyl α -phenyl- β , β -dicyanovinylphosphonates.

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UDC 547.37:547.26'118

USSR

PUDOVIK, A. N., ZIMIN, M. G., and KURGUZOVA, A. M., Kazan' State University
imeni V. I. Ul'yanov-Lenin

"Addition of α -Hydroxyalkylphosphonate Esters to Unsaturated Compounds"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1964-1967

Abstract: The study of addition of α -hydroxyalkylphosphonates to unsaturated compounds indicates that α -hydroxyalkylphosphonates have a tendency to add to acrylonitriles, methacrylate and methyl vinyl ketone in the presence of a saturated solution of sodium ethoxide to form α -(dialkoxyphosphono)alkyl β -cyano(aceto, carbomethoxy)alkyl ethers. The addition products were identified from the tabular data obtained by elementary analysis, molecular refraction and IR and NMR spectra. A comparison of the yields of the addition products shows diethyl α -hydroxymethylphosphonate to be most reactive, diethyl α -hydroxyethylphosphonate somewhat less reactive and diethyl α -hydroxyisopropylphosphonate to be least reactive in the addition reactions. There appears to exist a specific regularity of an increasing tendency to addition reactions (primary > secondary > tertiary) for aliphatic alcohols.

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1/2 015 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--REACTION OF DIETHYL PHOSPHITE WITH ACETOACETIC ESTER -U-
AUTHOR--(03)-PUDOVIK, A.N., ZIMIN, M.G., SOBANOV, A.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 936-7
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ALKYL PHOSPHITE, ACETOACETATE, CHEMICAL DECOMPOSITION,
CARBONYL COMPOUND, HYDROXYL RADICAL, ORGANIC PHOSPHORUS COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/1518 STEP NO--UR/0079/70/040/004/0936/0937
CIRC ACCESSION NO--AP0135179
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--27NOV70

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CIRC ACCESSION NO--AP0135179

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. REACTION OF ACCH SUB2 CO SUB2 ET WITH (ETO) SUB2 PHO IN THE PRESENCE OF ETONA FAILED TO YIELD IDENTIFIABLE PRODUCTS, BUT THE SAME REACTION RUN AT ROOM TEMP. WITH ET SUB2 NH AS THE BASE GAVE 95PERCENT (ETO) SUB2 P(O)CME(OH)CH SUB2 CO SUB2 ET (I), M. 46DEGREES, WHICH WITH ACCL AR AC SUB2 O AND A CATALYTIC AMT. H SUB2 SO SUB4 GAVE 96PERCENT CORRESPONDING ACETATE, B SUB10 169-70DEGREES, N PRIME20 SUBD 1.4425, D PRIME10 1.1447. AN ATTEMPT TO VERIFY THE EARLIER REPORT OF DEHYDRATION OF (RO) SUB2 P(O)CH(R)OH (US 2,579,810) SHOWED THAT LOSS OF WATER FROM THEM UNDER THE REPORTED CONDITIONS DID NOT OCCUR, BUT THAT THE ESTERS SMOOTHLY DECOMPD. INTO THE CARBONYL COMPD. AND (RO) SUB2 PHO; DEHYDRATION ALSO FAILED FOR (RO) SUB2 P(O)NHCH(OH)CCL5 U83, BUT HYDROXYPHOSPHONATES IN WHICH A CH SUB2 GROUP, ACTIVATED BY AN ELECTRON ACCEPTOR GROUP, IS PRESENT DID UNDERGO AT LEAST PARTIAL DEHYDRATION. THUS (ETO) SUB2 P(O)CME:CHCO SUB2 ET, 10PERCENT, B SUB15 156-70DEGREES, 1.4500, 1.0986, WAS FORMED FROM I BY HEATING WITH A TRACE OF PIPERIDINE IN C SUB6 H SUB6. THE SAME PRODUCT FORMED IN 63PERCENT YIELD FROM I ACETATE ON HEATING WITH DRY NA SUB2 CO SUB3.

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UDC 547.26'118

PUDOVIK, A. N., ZIMIN, M. G., and SOBANOV, A. A.

"Interaction of Diethyl Phosphite With Acetoacetic Ester"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, pp 936-937

Abstract: The authors were unable to isolate pure addition products with a satisfactory yield as a result of the reaction of acetoacetic ester with diethylphosphorous acid in the presence of sodium ethylate. However, when the reaction was staged at room temperature in the presence of diethylamine, an addition product was obtained, viz. diethyl ester of α -hydroxy- α -methyl- β -carboethoxyethylphosphonic acid (I). Heating of I with acetyl chloride or with acetic anhydride in the presence of a catalytic amount of sulfuric acid gives its acetate. I undergoes partial dehydration on heating with a catalytic amount of piperidine in a benzene medium to give diethyl ester of α -methyl- β -carboethoxyvinylphosphonic acid.

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UDC 539.143.43+661.718.1

ISHMAYEVA, E. A., ZIMIN, M. G., GALEYEVA, R. M., and PUDOVNIK, A. N., Kazan State University imeni V. I. Ul'yanov-Lenin, Kazan

"The Dipole Moments of Organophosphorus Compounds. II. Benzoylphosphonates, Benzoylphosphinates, and Benzoylphosphine Oxides"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 3, Mar 71, pp 538-543

Abstract: The diethyl esters of benzoylphosphonic acids $X-C_6H_4COP(O)(OEt)_2$ (I) with $X = p-Cl, m-Cl, m-Br, p-NO_2$ (b_p 150° at 2 mm, 146° at 2 mm, 164° at 2 mm; and b_p 145° at 1 mm, m.p. 51.5° , respectively) and diethyl(diphenyl) benzoylphosphine oxides $PhCOP(O)R_2$ (II) with $R = Et, Ph$ (b_p $155-6^\circ$ at 6 mm and $167-8^\circ$ at 1.5 mm, respectively) were prepared. Compounds I were obtained by the reaction of $X-C_6H_4COCl$ with triethyl phosphite and compounds II by reacting diethyl- or diphenylphosphinous acid $HP(O)R_2$ with $PhCOCl$. The dipole moments of compounds I and II were determined experimentally and the spatial structure of these compounds was elucidated from the data obtained, that of ethyl esters of ethyl- and phenylbenzoylphosphinic acids from 1/2

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ISHMAYEVA, E. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 3, Mar 71, pp 538-543

available experimental data. Differences between the experimentally determined and calculated values of the dipole moments of I indicated an interaction between X and the $-P(O)(OEt)_2$ group.

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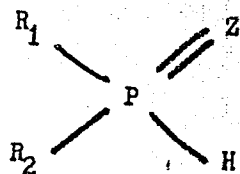
UDC 538.18-547.26'118.541.12

VINOGRADOV, L. I., ZIMIN, M. G., SAMITOV, YU. YU., and PUDOVNIK, A. N.,
Kazan State University

"Spin-Spin Interaction of P^{31} Nuclei Directly Bonded to H^1 in Unsaturated
Esters of Phosphoric Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 8, 1972, pp 1724-1727

Abstract: The value of the spin-spin coupling constant $^1J_{PH}$ is most influenced
by the amount of S-character of the P-H bond. This parameter was measured
for 12 compounds having the general formula



for $Z=O$ and S and R_1 and R_2 being various alkyl, alkoxy, or halide-substituted
alkyl groups. It was correlated with the orbital symmetries and had values
ranging from 734 to 431 hertz. $^1J_{PH}$ is directly proportional to the square
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of the order of the bond P_{Sh}^2 and to the cube of the effective nuclear charge z_{eff}^3 and thus can be written as:

$$\frac{\Delta^1 J_{PH}}{J_{PH}} \quad 2 \quad \frac{\Delta^2 P_{Sh}}{P_{Sh}} \quad 3 \quad \frac{\Delta^3 z_{eff}}{z_{eff}}$$

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UDC: 621.391.2:621.396.96

BABKIN, Yu. S., ZIMIN, N. N., IZYUMOV, A. O., ISKHAKOV, I. A., SOKOLOV, A. V.,
STROGANOV, L. I., SUKHONIN, Ye. V., SHABALIN, G. Ye.

"Measurement of Rain Attenuation on a 0.96 mm Wave Over a 1 km Route"

Moscow, Radiotekhnika i Elektronika, Vol 15, No 12, Dec 70, pp 2451-2453

Abstract: An investigation is made into attenuation in rains of varying intensity and a relationship is found between the attenuation and the mass of water precipitated in a given time interval. The transmitter was a frequency-stabilized unit based on a backward-wave oscillator, and the receiver used an indium antimonide detector cooled to liquid helium temperatures. Rotating one-meter Cassegrain antennas were used. Rainfall was registered by three P-2 recording rain gauges placed at both ends and in the middle of the 1 km transmission path. Temperature, pressure, humidity and wind speed were also measured. Attenuation on a 0.96 mm wave was determined from the change in signal level at the receiver during rains. For rain intensity of 0.12 mm/hr (covering more than 99% of all cases) the attenuation on a 0.96 mm wave in decibels per kilometer is approximately $1.53 \cdot 10^{-0.038 I}$, where I is rain intensity in mm/hr. This is 2.5-3 times the attenuation observed on a wave of 8.6 mm.

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1/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--EFFECT OF HARDENABILITY OF PROPERTIES OF STEEL ARTICLES AFTER
INDUCTION HEAT TREATMENT -U-
AUTHOR--ZIMIN, N.V.
COUNTRY OF INFO--USSR
SOURCE--TR. VSES. N.-I. IN-TA TOKOV VYSOK. CHASTOTY (TRANSACTIONS OF THE
REFERENCE--REFERATIVNYY ZHURNAL-TEKHNLOGIYA MASHINOSTROYENIYA, NO 2,
DATE PUBLISHED-----69
SUBJECT AREAS--MATERIALS
TOPIC TAGS--MEDIUM CARBON STEEL, METAL HARDENABILITY, BIBLIOGRAPHY, METAL
HARDENING, MARTENSITIC TRANSFORMATION, AUSTENITE, ALLOY DESIGNATION,
METAL TUBE, PLASTICITY, METAL HEAT TREATMENT/(U)ST25 CARBON STEEL,
(U)ST45 MEDIUM CARBON STEEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1265 STEP NO--UR/0000/69/000/010/0145/0152
CIRC ACCESSION NO--AR0120095
UNCLASSIFIED